Water Resources Assessments and Research Subactivity

Program	FY 2000 Estimate	Uncontrol. & Related Changes	Program Changes	FY 2001 Budget Request	Change from FY 2000
Ground-Water Resources	**2,800**	**+87**	**0**	**2,887**	**+87**
National Water-Quality Assessment	61,883	+1,263	0	63,146	+1,263
Toxic Substances Hydrology	13,306	+331	-1,240	12,397	-909
Hydrologic Research & Development	13,048	+331	-1,454	11,925	-1,123
Total Requirements $000	91,037	+2,012	-2,694	90,355	-682

Ground-Water Resources Program

Current Program Highlights

Ground water is one of the Nation's most important natural resources. Aquifers supply drinking water to about 130 million U.S. residents (about 50 percent of the population), and ground water is used in all 50 States. Much of the water used for irrigation by the Nation's important agricultural sector is provided by ground water. Ground water also plays a crucial role in sustaining streamflow and helping to maintain healthy lakes and wetlands, especially during low-flow periods. The Ground-Water Resources Program addresses ground water at risk from development by evaluating the availability and sustainability of ground water in the Nation's major aquifer systems, especially during drought periods. By conducting regional assessments, the Ground-Water Resources Program complements the USGS Federal-State Cooperative Water Program, which evaluates water resources on a more local scale in response to concerns raised by State and local water managers. The Program comprises three components: Investigations of Critical Regional Aquifer Systems, Regional Assessments of Key Ground-Water Issues, and Development of a National Aquifer Database.

Investigations of Critical Regional Aquifer Systems

Middle Rio Grande Basin, New Mexico -- Studies by the New Mexico Bureau of Mines and Mineral Resources and the USGS in cooperation with the City of Albuquerque have shown that ground water is not as plentiful as once thought. The USGS is working to more accurately estimate the amount and timing of ground-water flow into and through the ground-water system of the entire Middle Rio Grande Basin where population and corresponding demands for water are rapidly increasing. More information on the Middle Rio Grande Basin Study can be found on the USGS Web site at http://rmmcweb.cr.usgs.gov/public/mrgb/mrgbhome.html/.

South Florida -- The Everglades flow system and inputs to Florida Bay are as much a matter of ground-water flow as they are of surface water. Analysis of options for restoring the system depends on improved understanding of ground water and its interactions with surface water. The U.S. Army Corps of Engineers, National Park Service, and South Florida Water Management District are using this information to develop restoration plans for the Everglades.

Regional Assessments of Key Ground-Water Issues

Southwestern United States -- Surface water in the southwestern United States is generally fully appropriated, and considerable ground-water development has taken place. New water supplies increasingly rely on conjunctive use of surface water and ground water. The dependence of sensitive ecosystems on ground water creates additional competition for scarce water resources. To address these concerns, the USGS is conducting the second year of a 5-year study of the interaction of ground water and surface water in the alluvial basins of the Southwest.

Atlantic coast -- Development of ground-water resources along the Atlantic coast has caused saltwater to intrude many highly productive aquifers. Development can also affect the discharge of ground water to coastal ecosystems. A project to review what is known about these freshwater-saltwater issues along the Atlantic coast is nearing completion. A USGS Circular on saltwater intrusion and related coastal zone issues is being written. More information on the Atlantic Coastal Zone Assessment can be found on the USGS Web site at http://water.usgs.gov/ogw/saltwater/.

National Aquifer Database

One of the long-term goals of this program is to build a database that contains up-to-date information on major features of all of the Nation's regional aquifer systems. Features such as aquifer extent, water-level maps, aquifer thickness, hydraulic properties, and major geochemical characteristics would be available as digital files over the Internet. Preliminary planning is underway for the database.

Recent Accomplishments

Ground Water Atlas of the United States -- The USGS has completed an atlas of the Nation's major aquifers. The atlas comprises a series of printed publications that describe the location and extent of important aquifers in the United States as well as their geologic and hydrologic characteristics. The series consists of 13 chapters that describe the ground-water resources of regions that, collectively, cover the 50 states, Puerto Rico, and the U.S. Virgin Islands. More information on the Ground Water Atlas can be found on the USGS Web site at http://wwwcapp.er.usgs.gov/publicdocs/gwa/.

Ground-Water Model Development -- Ground-water models have recently become a more vital component of many ground-water studies; they help scientists and resource managers to better understand the movement of ground water, the transport of contaminants in ground water, and the effects of human activities (such as pumping) on water availability and quality. Improvements in computer codes for models are needed to keep pace with changing needs of hydrologists who evaluate ground-water flow and transport of contaminants in ground water. Several updates for MODFLOW, the most widely used ground-water-flow code in the world, are nearly complete. These updates include more efficient solutions for estimating model parameters, new interfaces to make the models more "user friendly," and new modules for solving specific problems such as ground-water flow near lakes. More information on ground-water model codes can be found on the USGS Web site at http://water.usgs.gov/software/ground_water.html/.